

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY



(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 16 DEC 2005

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|--|--|---|--|--|
| Applicant's or agent's file reference<br>MDX,007-PCT   |  | <b>FOR FURTHER ACTION</b>   |  | See Form PCT/PEA/416                         |
| International application No.<br>PCT/GB2004/050027   |  | International filing date (day/month/year)<br>18.11.2004  |  | Priority date (day/month/year)<br>19.11.2003 |
| International Patent Classification (IPC) or national classification and IPC<br>B23K35/30, C22C5/06  |  |   |  |  |
| Applicant<br>MIDDLESEX SILVER CO. LIMITED  |  |   |  |  |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows: (1)</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> |  |   |  |  |
| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>   |  |   |  |  |
| Date of submission of the demand<br><br>17.05.2005   |  | Date of completion of this report<br><br>16.12.2005   |  |  |
| Name and mailing address of the international preliminary examining authority:<br> European Patent Office - P.B. 5818 Patentlaan 2<br>NL-2280 HV Rijswijk - Pays Bas<br>Tel. +31 70 340 - 2040 Tx: 31 651 epo nl<br>Fax: +31 70 340 - 3016  |  | Authorized Officer<br>Rischard, M<br>Telephone No. +31 70 340-4776<br> |  |  |

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/GB2004/050027

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-22 as originally filed

**Claims, Numbers**

1-7 received on 18.07.2005 with letter of 14.07.2005

**Drawings, Sheets**

1 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/GB2004/050027

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

|                               |             |     |
|-------------------------------|-------------|-----|
| Novelty (N)                   | Yes: Claims | 1-7 |
|                               | No: Claims  |     |
| Inventive step (IS)           | Yes: Claims | 1-7 |
|                               | No: Claims  |     |
| Industrial applicability (IA) | Yes: Claims | 1-7 |
|                               | No: Claims  |     |

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following document:

D3: US-A-4 242 134 (D'SILVA, THOMAS L) 30 December 1980 (1980-12-30)

**Amendment of the claims:**

The amendments filed with the International Bureau under Article 19(1) introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 19(2) PCT:

The expression "said solder being a colour match for Sterling Silver" (claims 1 and 5) introduces subject-matter which is not disclosed in the application as filed. For the purpose of the following report, this expression has not been considered.

**Novelty:**

1. A silver brazing alloy with a composition Ag: 65%, Cu: 20%, Zn: 15% (e.g. SILVALOY EASY, Woldman's Engineering alloys) and a method for brazing silver with this alloy is known.

Claim 1 differs from the above by the method using an alloy which additionally contains germanium, which affects the colour, reduces the melting point and increases the corrosion resistance. Claim 1 is therefore new in view of this document.

2. Claim 5 differs from the SILVALOY EASY by a germanium content of 0.5-3%. Claim 5 is therefore also new in view of this alloy.

3. Document D3 discloses a silver brazing alloy of the Ag-Cu-Zn family containing 56.5% Ag, 20% Cu, 13.5% Zn and 10% Ge [col.2,l.14]. Claim 5 differs from this document by a lower germanium content, leading to a closer colour match with Argentium silver. Claim 5 is therefore also new in view of document D3.

Inventive step:

1. Claim 1, respectively claim 5 differ from the known alloy by the addition of germanium, which affects the colour, reduces the melting point and increases the corrosion resistance.

The objective technical problem to be solved by the present invention is therefore to provide an alternative method for brazing or soldering silver and the soldering alloy therefor, the solder having a good colour match with Argentium silver, high corrosion resistance and low melting point.

Notwithstanding the objection under VII. and VIII. , the solution to this problem proposed in claims 1 and 5 appears to involve an inventive step (Article 33(3) PCT) for the following reasons:

The addition of germanium to a brazing alloy of the Ag-Cu-Zn family is known in the technical field, for the purpose of reducing the melting point, enhancing the wettability and the corrosion resistance. However, there is no indication in the prior art which would have lead the skilled person to add germanium in a lower amount in order to achieve a solder which presents additionally a good colour match to Argentium silver.

2. Claims 2 to 4 and 6 to 7 are dependent on claims 1 and 5 respectively and therefore also fulfill the requirements of the PCT concerning novelty and inventive step.

**Re Item VII**

**Certain defects in the international application**

The amendments filed with the International Bureau under Article 19(1) introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 19(2) PCT:

The expression "said solder being a colour match for Sterling Silver" (claims 1 and 5) introduces subject-matter which is not disclosed in the application as filed. For the purpose of the following report, this expression has not been considered.

**Re Item VIII**

**Certain observations on the international application**

Claims 1 and 5 are not supported by the description as required by Article 6 PCT, as their scope is broader than justified by the description and drawings. The reasons therefore are the following:

It appears from the description [p.10,11,13,16] that the inventive solder has a good colour match with Argentium silver (92.5% Ag, 6.3% Cu, 1.2% Ge). No example states a close colour match to Sterling silver (92.5% Ag, 7.5% Cu).

# CLAIMS

1. A method of making a joint in Sterling silver which includes using a silver solder or brazing alloy of the Ag-Cu-Zn family containing 10-30 wt% Cu, 8-15 wt % Zn, from 0.5 - 3 wt% Ge, optionally 0.05-0.4 wt % Si, optionally 1-3 wt% Sn, optionally 1ppm-0.3 wt% B, the balance being 55-77wt%, Ag, said solder being a colour match for said Sterling silver.
2. The method of claim 1, wherein said Sterling silver is of content about Ag 92.5 wt%, Cu 6.3 wt%, Ge 1.2 wt %.
3. The method of claim 1 or 2, wherein the silver solder or brazing alloy contains 1.5-2.5 wt % Ge.
4. The method of claim 1, 2 or 3, wherein the silver or brazing alloy contains about 2 wt % Ge.
5. For use in the method of any preceding claim, a silver solder or brazing alloy of the Ag-Cu-Zn family containing 10-30 wt% Cu, 8-15 wt % Zn, from 0.5 - 3 wt% Ge, optionally 0.05-0.4 wt % Si, optionally 1-3 wt% Sn, optionally 1ppm-0.3 wt% B, the balance being 55-77wt%, Ag, said solder being a colour match for Sterling silver.
6. An alloy according to claim 5, which is in the form of rod, strip or wire.
7. An alloy according to claim 5, which is in the form of paste.